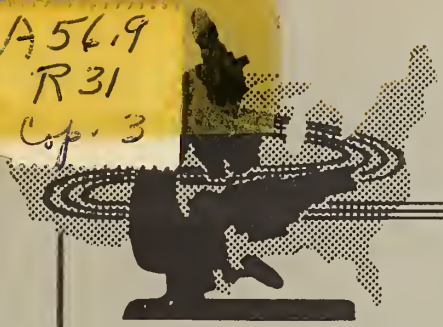

Soil Moisture Survey

of some representative Illinois soil types

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C O N T E N T S

SOIL MOISTURE SURVEY OF SOME REPRESENTATIVE ILLINOIS SOIL TYPES [1/]

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INTRODUCTION

Although the energy concept of soil moisture provides agricultural workers with an extremely useful means of understanding and evaluating agronomic and engineering practices, it is not feasible at the present time to measure the soil moisture characteristics for every soil type. The more practical solution is to make such measurements on representative soil types and to project the information obtained to closely related soils. Distinguishing features, such as soil structure and textural class which are amenable to mapping in the field, can be used to place soil types into groups that are nearly alike.

This report contains basic soil moisture characteristics of some representative soils in Illinois. The uses to be made of these data are beyond the objectives of this report.

SOILS STUDIED

For this study in Illinois, soil types were selected which differed widely in soil physical properties, but were representative of most of the well established soil types of the state.

Thirty soil types in 22 counties were sampled: table 1 lists the soils which are similar to each of the selected types and figure 1 shows that sample sites covered practically all parts of the state. Selected types represented soils of the Gray Brown Podzolic, Brunizems, Planosols, Humic Gley, and Alluvial Great Soil Groups. An attempt was made to sample

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1/ Joint contribution of the Illinois Agricultural Experiment Station and the Agricultural Research Service and Soil Conservation Service of the United States Department of Agriculture.

2/ The authors are, respectively, Soil Scientist, Soil and Water Conservation Research Division, Agricultural Research Service, and State Soil Scientist, Soil Conservation Service, both located at Illinois Agricultural Experiment Station, Urbana.

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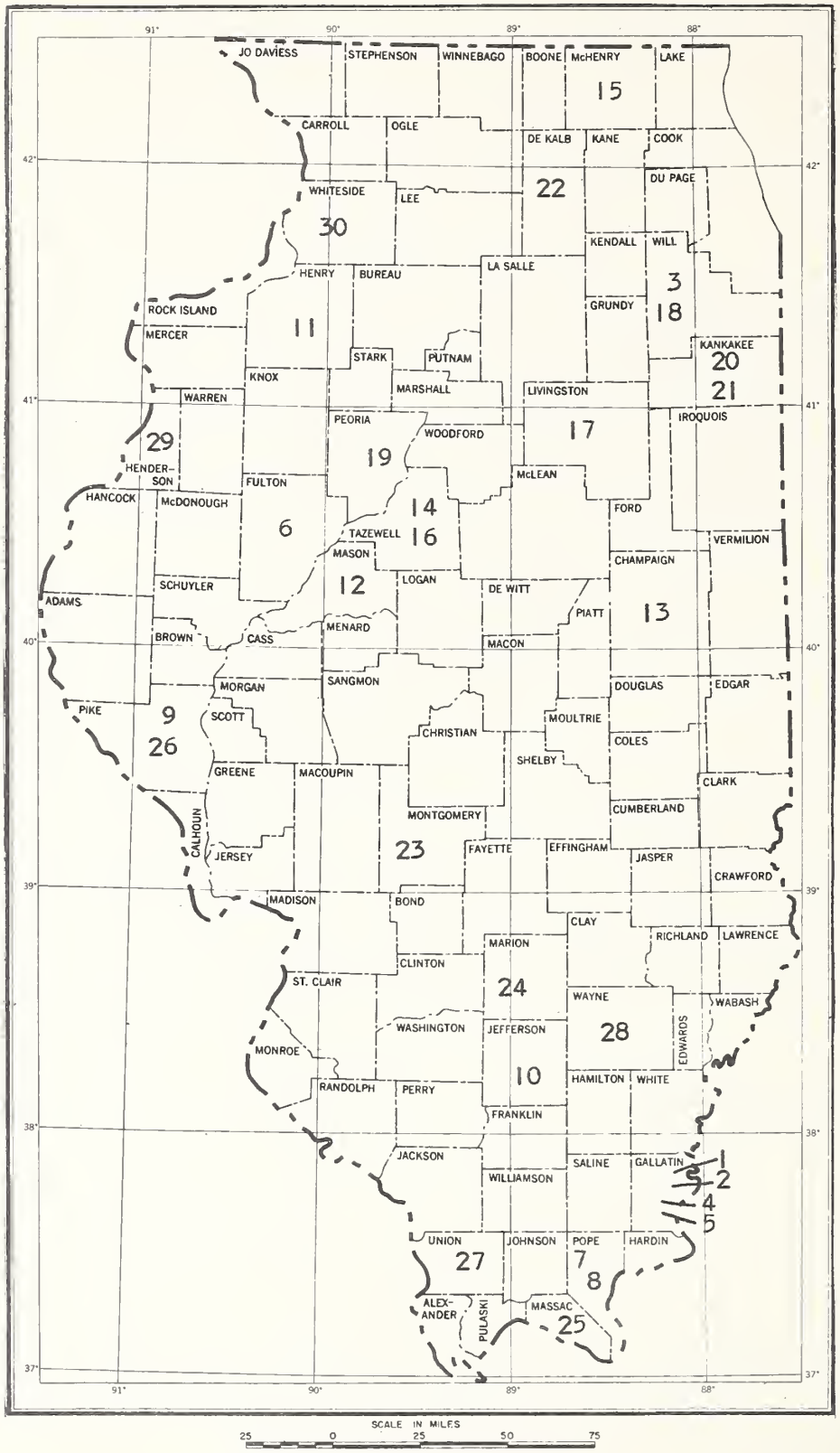

Fig. 1. Sample sites of 30 soil types in Illinois.

sites where a moderately high level of management was practiced. This management level was defined to include a high level of fertility, a rotation including grasses and legumes, proper cultivation, proper crop residue management, and erosion control measures where needed.

Complete soil type descriptions and soil moisture characteristics of major horizons of each type are appended, as tables, at the end of this written report.

EXPERIMENTAL MEASUREMENTS

Bulk Density

The bulk density of each horizon of every soil profile was evaluated in order to convert soil moisture content from a percent by weight to a volume basis. This conversion was accomplished as follows:

$$\text{Inches of water} = \left(\frac{\text{B.D.}}{\rho}\right)(d)(Pw),$$

where B.D. = Bulk density of soil
ρ = Density of water
d = Soil Depth
Pw = Moisture content percentage (per unit weight of soil)

In usual practice the density of water, ρ, is taken to be unity.

The bulk density samplings were made with a Veihmeyer tube. The data presented herein are the average of 5 separate samplings at each sampling location. The samplings were made in September when the soil was dry. It was found that consistent results could not be obtained when the soil was very wet. The greatest difference between samplings occurred in the "A" horizon, varying as much as 0.3 gm/cc. In the lower depths much more consistent results were obtained.

The bulk density values given in this report are approximate. Present methods do not overcome the inherent variability in bulk density found in soils. Sampling, measurement, and time errors are involved which can be defined explicitly. However, the uniform technique in collection of the data gave uniform results that can be used in practical agronomic situations.

Moisture Measurements

Definitions and Discussion

There are two important factors that must be considered in characterizing soil moisture, a capacity factor and an intensity factor. The capacity factor is usually expressed as the percent water per unit weight of soil, Pw, or as the percent water per unit volume of soil, Pv.

The intensity factor is expressed as the work per unit mass of water that is required to remove moisture from the soil. However, because the density of water is unity in the c.g.s. system, work per unit mass of water is numerically equal to pressure, and rather than "work", a pressure term such as "tension" or "suction" is generally used.

The capacity factor at a given intensity level, called the soil moisture characteristic, is influenced by the antecedant moisture condition of the sample. In order to assure uniformity, the moisture data reported herein are from the desorption side of the hysteresis loop. In other words, the data were collected by starting with saturated soil, and determining moisture contents as the moisture tension was increased.

The use of desorption data is a matter of experimental convenience and probably never adequately describes a field situation except after long periods of time have elapsed. Soils in place are continuously wetting and drying, and consequently it is not possible to predict the exact moisture characteristic.

There is some question as to whether disturbed or undisturbed samples should be used to evaluate soil moisture characteristics. Theoretically, there should be no difference in the values obtained providing the two samples have had the same previous moisture history. However, in taking undisturbed samples this becomes undesirable, since it is thought best not to allow them to become completely air-dry. Consequently they are wetted at some moisture content other than air-dry, and the value obtained upon desorption does not represent a true desorption process, because a different part of the hysteresis loop is followed. Because no consistent results can be obtained in this manner, it is best to use a standardized desorption procedure. If, however, data are desired at low tension values, i.e. below 100 cm. water tension, the standardized desorption procedure requires the use of an undisturbed sample, and standard previous moisture history.

It has been empirically determined that the 1/3 atmosphere tension is very closely related to field capacity. Field capacity is defined as the moisture content percentage of a soil from which the downward movement of water has become negligibly slow after being wetted. The 1/3 atmosphere percentage is, however, considerably lower than the field capacity for fine-textured soils. Accurate data of field capacity can only be obtained by field determination, since its value is dependent upon such factors as soil texture, stratification, and previous moisture history.

The 15 atmosphere percentage has been found to be closely related to the wilting percentage, i.e., the point where plants can no longer obtain sufficient water to maintain life under normal evaporative conditions. Here again the value is variable, depending on such factors as texture, evaporative demand, and root ramification.

The difference between the amount of water held at the 1/3 atmosphere tension and the 15 atmosphere tension represents the amount of plant available water in the soil. It must be emphasized that the available moisture range of a soil is a capacity factor and not an intensity factor. Ample evidence has been accumulated to show that water is not equally available over the range from 1/3 to 15 atmospheres tension.

Soil moisture desorption data are important because of their relationship to plant growth control, field capacity determinations, irrigation practices, drainage investigations, and other related applications. It is probably the most consistent measurable property of a soil type.

Sampling Procedure

The samples for soil moisture desorption data determinations were taken adjacent to the bulk density sample sites, being randomly distributed for each depth sampled at five locations within an acre sample soil type area. Soil samples from each depth of the five sample sites were composited for the laboratory determinations.

Measurement

The moisture content of the soils in equilibrium with the 1/3, 1/2, 1, and 1.75 atmosphere tension was determined by pressure plate apparatus; and the 5 and 15 atmosphere percentages were determined by a pressure membrane apparatus. All values presented represent separate duplicate determinations from the composite sample.

CALCULATION OF DATA

Inch water/inch soil was calculated for unit depth by the conversion to inches of water described previously. Total inches of water in a typical horizon is therefore the inch water/inch soil multiplied by the total depth in inches in a typical horizon. The inches of available water in a typical horizon is the difference between the total inches at the 1/3 and 15 atmosphere tension levels.

The total inches of available water in a soil type is the sum of inches in the individual horizons of the profile. The total inches of available water in probable rooting depth was determined by summing the various depths down to the depth of rooting. Rooting depth was considered as being synonymous with the depth of moisture extraction by corn plants. It was determined by periodical soil moisture measurement to a depth of 5 feet in a corn field at or near the sampling site during the growing season.

An example of soil type influence upon moisture extraction may be seen by comparing the moisture extraction patterns of Saybrook silt loam with Tama silt loam in 1955, shown in figures 2 and 3. The Saybrook soils are characterized by a dense subsoil occurring about 40 inches.

The moisture extraction pattern of the Saybrook Silt Loam, figure 2, shows that very little water was removed below the 30 to 40 inch depth. On the other hand, for the Tama soils, with no dense horizon down to 60 inches in depth, the moisture extraction pattern, figure 3, indicates that water is removed throughout the entire depth of the profile. In general, the field sampling data have indicated that removal of water is diminished when the profile density ranges from 1.5 to 1.75, depending on texture, and practically ceases when the density exceeds 1.75.

CONSISTENCY OF DATA FOR A SOIL TYPE

In order to obtain a measure of the reliability of the data in typifying a soil type, the 1/3 atmosphere tension level was determined on a particular soil type over a wide range of that type. Samples were taken from locations representing the ranges in subsoil development. These data are reported in table 2. It is to be noted that the results were quite consistent and therefore offer some degree of reliability.

The variability in bulk density within a particular soil type is shown by means of 2 soils, each sampled at 2 different locations (table 3). The variability in the determination shows up greatest in the upper horizons, probably reflecting different soil management as well as the inherent difficulty of getting a representative sample with a Veihmeyer tube from soils that have been disturbed. The more consistent bulk densities found in these samplings for the lower horizons agree with repeated earlier observations by the authors.

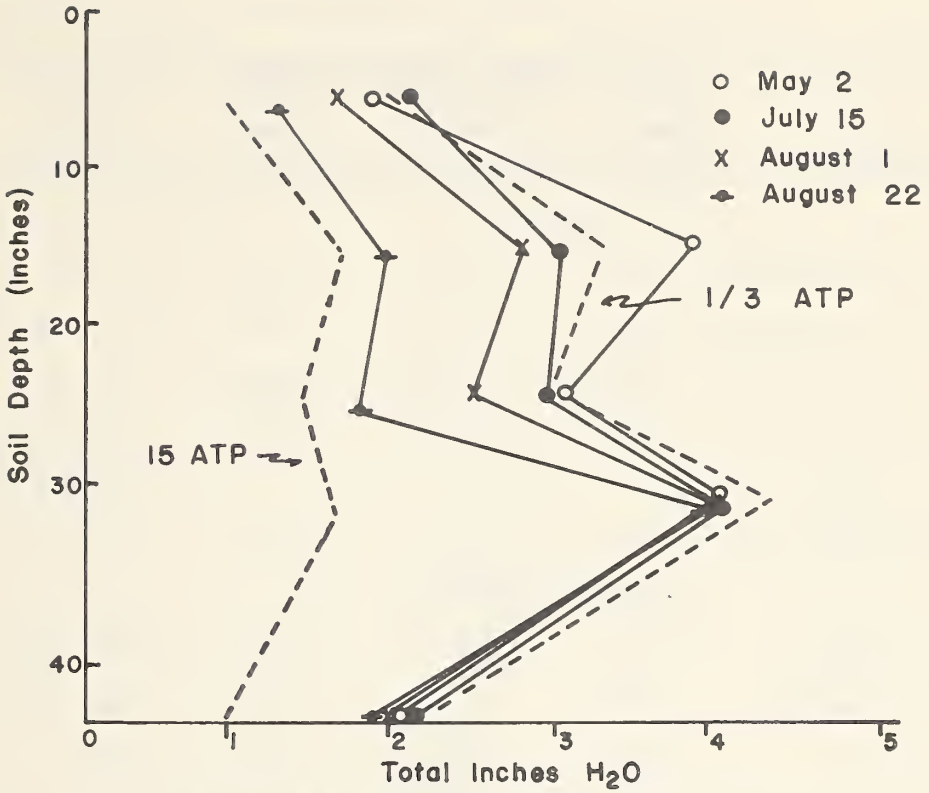

Fig. 2. Moisture extraction patterns, Saybrook Silt Loam, 1955.

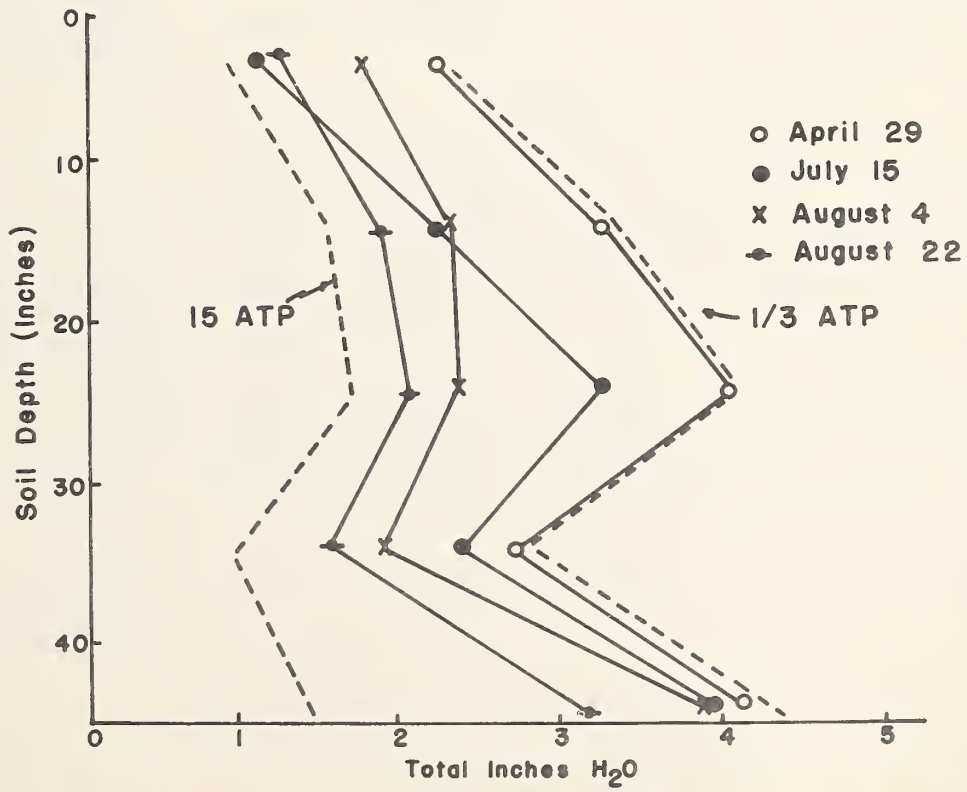

Fig.3. Moisture extraction patterns, Tama Silt Loam, 1955

Table 1. Available moisture holding capacities of Illinois soils.

Soil Type	Available Water (Inches) Total to Depth of 5 feet	Available Water (Inches) Total in Probable Rooting Depth	Probable Rooting Depth (Inches)	Similar Soils to which Data are Applicable
Humic Gley				
1. Bonpas silty clay #129	12.17	12.17	60+	--
2. Patton silty clay #465	12.04	12.04	60+	--
3. Ashkum silty clay loam	12.48	5.88	26-36	Milford
4. Bonpas silty clay loam	9.62	9.62	60+	Abington, Selma, Drummer, Sable, Illiopolis
5. Patton silty clay loam	13.16	13.16	60+	--
Gray Brown Podzolic				
6. Clinton silt loam	16.30	16.30	60+	Clement, Alma, Elco
7. Grantsburg silt loam	16.76	16.76 (9.54)*	24-34	Hosmer, Ava
8. Robbs silt loam	17.22	17.22 (8.16)*	24-34	Stoy
9. 160 silt loam	14.98	14.98	60+	--
10. Bluford silt loam	17.62	17.62 (7.48)*	18-24	Freeburg, Hoyleton, Lukin, Oconee
11. Fayette silt loam	14.66	14.66	60+	Sylvan, Camden, Birkbeck, Rozetta, Russell, Westville
Brunizem				
12. Onarga fine sandy loam	8.78	8.78	60+	Rankin, Ayr
13. Sidell silt loam	12.44	12.44	60+	--
14. Muscatine silt loam	11.86	11.86	60+	Ipava, Brenton, Flanagan, Platville
15. Ringwood silt loam	8.55	4.36	36-42	Alexis, LaRose, Lomax, Griswold, Carmi
16. Sumner sandy loam	2.89	2.89	60+	Disco, Levan, Billett
17. Swygert silt loam	8.41	3.51	22-28	Denrock
18. Elliott silt loam	12.37	6.65	32-38	Martinton, Mokena
19. Tama silt loam	13.80	13.80	60+	Douglas, Proctor, Catlin, Plano, Bolivia, Tovey, Symerton

Table 1, Continued.

Soil Type	Available Water (Inches) Total to Depth of 5 feet	Available Water (Inches) Total in Probable Rooting Depth	Probable Rooting Depth (Inches)	Similar Soils to which Data are Applicable
20. Watseka loamy fine sand	2.31	2.31	60+	---
21. Hoopeston sandy loam	2.88	2.88	60+	---
22. Saybrook silt loam	10.59	6.59	36-44	---
Planosol - Planosol Intergrades				
23. Cowden silt loam	14.19	14.19 (5.99)**	20-26	Lentz, Brooklyn, Benald, Thorp, Denny, Breeze, Osceola
24. Cisne silt loam	14.37	14.37 (5.14)**	20-26	Rinard, Owaneco, Dunkell
25. Ginat silt loam	13.84	13.84 (5.34)**	20-26	Loy, Wynoose, Racoon, Flora, Henry
26. Herrick silt loam	16.18	10.48	40-60	Beardstown, Clarksdale, Velma, Edgington
Alluvial				
27. Tice silty clay loam	13.95	13.95	60+	Radford, Coffeen, Garham
28. Bonnie silt loam	17.97	10.41	30-40	Keyesport, Wakeland, Belknap, Dupo
29. Sawmill silty clay loam	9.96	9.96	60+	Ambraw, Beaucoup
30. Huntsville silt loam#77	13.22	13.22	60+	Kemper, Allison

*The Grantsburg and Robbs soils are characterized by a Fragipan occurring at approximately the 30-inch depth. This restricts root growth under normal conditions, thereby reducing the effective rooting depth and plant-available water to the value enclosed in parentheses. Under high level of management the total available water can be utilized by plants.

**The Cowden, Cisne, and Ginat soils are characterized by claypans developed at depths from 20-30 inches. Under high levels of management and added fertility, plants can use water from the lower depths but under many conditions the plant-available water will be approximately that enclosed by parentheses.

Table 2. One-third atmosphere percentage from various degrees of development of 3 Illinois soil types.

Soil Type	Horizon	Highly Developed	Modal	Weakly Developed
		% H_2O	% H_2O	% H_2O
Muscatine silt loam	A	34.3	33.1	30.9
	B	35.9	31.8	30.9
	C	33.0	31.4	32.1
Ipava silt loam	A	28.1	30.5	27.7
	B	35.5	35.1	34.9
	C	31.0	31.4	31.3
Flanagan silt loam	A	30.1	30.0	31.8
	B	38.6	35.5	33.9
	C	30.0	30.3	29.8

Table 3. Variability of bulk density for two soil types.

Herrick Silt Loam			Cisne Silt Loam		
Location	Depth	B.D.[1]/	Location	Depth	B.D.[1]/
	in.	gm/cc		in.	gm/cc
Pike Co.	0-6	1.16	Marion Co. (1)	0-6	1.21
	10-16	1.10		12-18	1.44
	18-24	1.20		18-24	1.38
	28-34	1.34		30-36	1.30
	40-46	1.55		36-42	1.48
Montgomery Co.	0-8	1.01	Marion Co. (2)	0-6	1.33
	8-14	1.24		6-18	1.42
	15-21	1.26		18-24	1.36
	27-33	1.36		24-34	1.41
	39-45	1.40		34-42	1.37

1/ B.D.= Bulk Density.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Bonpas silty clay #129
Classification: Humic Gley
Area: Gallatin County, Ill.
Parent Material: Fine waterlaid silts & clays

Relief: Level - flat
Drainage: Very poor to poor

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-5	Very dark gray(10YR 3/1) silty clay; fine to medium moderate crumb structure; slightly firm when moist.	0.41	0.21	2.15	1.05	1.10
A_1	5-15	Very dark gray (7.5YR 3/0) silty clay; coarse weak blocky structure; firm when moist.	.53	.28	5.30	2.80	2.50
B_{2g}	15-23	Dark gray (2.5Y 4/0) silty clay; coarse weak blocky structure; very firm when moist.	.38	.22	3.04	1.76	1.28
B_{3g}	23-31	Dark gray (2.5Y 4/0) with few medium distinct mottles of yellowish brown (10YR 5/8) heavy silty clay; massive structure.	.34	.19	2.72	1.52	1.20
C_g	31-60	Gray (5Y 4/1) mottled with few distinct medium olive yellow (5Y 6/8) heavy silty clay; massive.	.44	.23	12.76	6.67	6.09

Total inches available water in soil type: 12.17

Total inches available water in probable rooting depth: 12.17

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-5	1.27	32.4	30.4	27.0	23.6	19.5	16.4
A_1	5-15	1.64	32.5	31.1	26.6	23.8	20.5	17.4
B_{2g}	15-23	1.29	29.8	30.4	26.0	23.2	19.8	16.9
B_{3g}	23-31	1.19	28.8	28.4	25.5	21.9	18.5	16.1
C_g	31-60	1.44	30.9	28.5	25.3	22.7	18.8	15.7

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Patton sicl (Heavy phase) - 465 Relief: Level - flat
Classification: Humic Gley Drainage: Poor to very poor
Area: Gallatin County, Ill.
Parent Material: Waterlaid silt and clays of Wis. age

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_1	0-10	Very dark grayish brown (10YR 3/2) silty clay loam; moderate granular structure; friable to slightly firm when moist.	0.38	0.20	3.80	2.00	1.80
B_{1g}	10-20	Very dark gray (10YR 3.5) with common fine faint mottles of olive gray (5Y 4/2) and with common medium faint dark grayish brown (2.5Y 4/2) silty clay; med. mod. angular blocky struct.; firm when moist.	.40	.20	4.00	2.00	2.00
B_{2g}	20-36	Very dark gray (10YR 3.5/1) mottled with common medium faint dark grayish brown (2.5Y 4/2) and common fine faint olive gray (5Y 4/2) fine silty clay; angular blocky structure; very firm when moist.	.44	.21	7.04	3.36	3.68
B_{3g}	36-48	Grayish brown (2.5Y 5/2) mottled with common medium faint light olive brown (2.5Y 5/4) silty clay; coarse weak angular blocky structure; firm when moist.	.41	.22	4.92	2.64	2.28
C_g	48-60	Grayish brown (2.5Y 5/2) mottled with many coarse distinct yellowish-brown (10YR 5/8) and common fine faint light yellowish brown (2.5Y 6/4) light silty clay; structureless.	.39	.20	4.68	2.40	2.28

Total inches available water in soil type: 12.04

Total inches available water in probable rooting depth: 12.04

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_1	0-10	1.29	29.6	28.4	24.4	21.7	17.8	15.6
B_{1g}	10-20	1.28	31.7	29.1	25.6	22.9	18.9	15.8
B_{2g}	20-36	1.32	33.1	30.4	26.1	23.7	18.7	16.2
B_{3g}	36-48	1.31	31.0	29.3	25.6	23.0	18.7	16.7
C_g	48-60	1.24	31.5	29.1	25.6	22.6	18.5	15.9

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Ashkum silty clay loam
Classification: Humic Gley
Area: Will County, Ill.
Parent Material: Wisconsin aged silty clay loam till

Relief: Flat
Drainage: Poor

Horizon	Depth	Description	Inch Water/ Inch Soil 1/3 atm	Inch Water/ Inch Soil 15 atm	Total In. Water in Typical Horizon 1/3 atm	Total In. Water in Typical Horizon 15 atm	Inches Available Water in Typical Horizon
A_p+A_1	0-12	Black (10YR 2/1) silty clay loam; moderately developed; fine granular structure; sticky.	0.33	0.17	3.96	2.04	1.92
B_{2g}	12-30	Grayish brown (2.5Y 5/2) mottled with common coarse distinct brown (10YR 5/3) gritty silty clay loam; moderately developed medium subangular blocky structure; sticky.	.45	.23	8.10	4.14	3.96
C_g	30-60	Grayish brown (2.5Y 5/2) mottled with coarse distinct yellowish brown (10YR 5/6); silty clay loam; calcareous; massive.	.45	.23	13.50	6.90	6.60
Total inches available water in soil type:							12.48
Total inches available water in probable rooting depth:							5.88

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres 1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p+A_1	0-12	0.97	34.1	30.2	26.1	23.3	19.4	17.6
B_{2g}	12-30	1.38	32.6	29.3	25.2	22.9	18.7	16.5
C_g	30-60	1.70	26.2	24.9	22.3	20.8	17.0	13.8

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Bonpas silty clay loam
Classification: Humic Gley
Area: Gallatin County, Ill.
Parent Material: Water worked silts and clays of Wis. age

Relief: Level - flat
Drainage: Poor to very poor

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-6	Very dark gray (10YR 3/1) silty clay loam; medium moderate crumb structure.	0.36	0.18	2.16	1.08	1.08
A_1	6-16	Very dark gray (10YR 3/1) silty clay loam; moderate fine to medium granular to crumb structure.	.39	.24	3.90	2.40	1.50
B_{1g}	16-21	Light olive brown (2.5Y 5/4) and dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium subangular blocky structure.	.38	.22	1.90	1.10	0.80
B_{2g}	21-27	Light olive brown (2.5Y 5/4) and dark grayish brown (2.5Y 4/2) heavy silty clay loam; strong medium to fine subangular blocky to blocky structure.	.35	.19	2.10	1.14	0.96
B_{3g}	27-32	Light olive brown (2.5Y 5/4) with common coarse faint dark grayish brown (2.5Y 4/2) mottles silty clay loam; weak medium to coarse angular blocky structure.	.35	.19	1.75	0.95	0.80
C_g	32-60	Light yellowish brown (2.5Y 6/4) with common medium faint dark grayish brown (2.5Y 4/2) mottles silty clay loam; structureless to weak coarse angular blocky structure.	.30	.14	8.40	3.92	4.48

Total inches available water in soil type: 9.62
Total inches available water in probable rooting depth: 9.62

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-6	1.39	25.8	24.8	21.4	19.2	14.7	12.6
A_1	6-16	1.41	28.0	26.5	23.5	21.8	18.1	16.9
B_{1g}	16-21	1.32	28.7	27.7	24.2	22.0	17.4	17.1
B_{2g}	21-27	1.20	29.1	27.9	23.9	21.9	17.1	16.2
B_{3g}	27-32	1.22	28.7	27.6	23.6	21.8	16.7	15.8
C_g	32-60	1.06	27.9	26.8	23.1	21.4	15.1	12.9

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Patton silty clay loam
Classification: Humic Gley
Area: Gallatin County, Ill.
Parent Material: Fine waterlaid silts and clays from Wis. aged glaciation

Relief: Level - flat
Drainage: Poor

Horizon	Depth	Description	Inch Water/ Inch Soil 1/3 atm	Inch Water/ Inch Soil 15 atm	Total In. Water in Typical Horizon 1/3 atm	Total In. Water in Typical Horizon 15 atm	Inches Available Water in Typical Horizon
A_p	0-7	Very dark grayish brown (2.5Y 3/2) silty clay loam; moderate fine crumb structure.	0.37	0.18	2.59	1.26	1.33
A_1	7-12	Very dark grayish brown (10 YR 3/2) light silty clay loam; moderate fine to medium granular to crumb structure.	.41	.21	2.05	1.05	1.00
B_{1g}	12-21	Very dark gray (5Y 3/1) and olive (5Y 5/4) light silty clay loam with moderate medium subangular blocky to angular blocky structure.	.36	.18	3.24	1.62	1.62
B_{2g}	21-30	Very dark gray (5Y 3/1) and olive (5Y 5/4) silty clay loam with moderate to strong medium angular blocky to subangular blocky structure.	.34	.15	3.06	1.35	1.71
C_1	30-60	Olive gray (5Y 5/2) and yellowish brown (10YR 5/8) silty clay loam; weak coarse blocky to structureless.	.40	.15	12.00	4.50	7.50

Total inches available water in soil type: 13.16

Total inches available water in probable rooting depth: 13.16

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres 1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-7	1.40	26.1	24.4	21.6	20.9	14.5	12.6
A_1	7-12	1.51	27.0	24.6	20.7	20.0	15.2	14.0
B_{1g}	12-21	1.37	26.4	24.0	21.2	20.7	14.6	13.5
B_{2g}	21-30	1.32	25.8	24.1	21.1	20.6	14.1	11.3
C_1	30-60	1.41	28.7	25.4	22.5	21.9	13.4	10.9

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Clinton silt loam
Classification: Gray brown Podzolic
Area: Fulton County, Ill.
Parent Material: Loess (Peorian)

Relief: Undulating to rolling - normal
Drainage: Moderately well

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-7	Dark grayish brown (10YR 4/2) silt loam; very friable when moist; weak fine granular.	0.31	0.07	2.17	0.49	1.68
A_2	7-12	Brown (10YR 5/3) silt loam; friable when moist; weak fine platy.	.36	.16	1.80	.80	1.00
B_1	12-17	Yellowish brown (10YR 4.5/3.5) silty clay loam; firm when moist; moderate fine subangular blocky.	.42	.19	2.10	.95	1.15
B_2	17-30	Yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky; very firm when moist.	.44	.18	5.72	2.34	3.38
B_3	30-37	Yellowish brown (10YR 5/4) and pale brown (10YR 6/3) light silty clay loam; weak medium subangular blocky; firm when moist.	.46	.18	3.22	1.26	1.96
C_1	37-60	Yellowish brown (10YR 5/4) and pale brown (10YR 6/3) silt loam; massive.	.47	.16	10.81	3.68	7.13
Total inches available water in soil type:							16.30
Total inches available water in probable rooting depth: (60")							16.30

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-7	1.16	27.0	21.6	16.9	14.1	9.1	6.4
A_2	7-12	1.17	31.1	28.1	23.5	20.5	16.6	13.5
B_1	12-17	1.15	36.9	34.1	28.3	25.2	20.4	17.0
B_2	17-30	1.28	34.3	31.4	25.0	21.8	17.0	14.2
B_3	30-37	1.38	33.7	30.7	24.2	20.8	16.1	12.8
C_1	37-60	1.43	32.9	28.2	21.7	18.5	14.5	11.5

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Grantsburg silt loam
Classification: Gray brown Podzolic (Fragipan)
Area: Pope County, Ill.
Parent Material: Loess

Relief: Rolling - normal
Drainage: Moderately well

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-6	Brown (10YR 4/3) friable silt loam; fine crumb structure.	0.33	0.09	1.98	0.54	1.44
A_2	6-12	Yellowish brown (10YR 5/6) friable silt loam; weak medium subangular blocky structure.	.37	.10	2.22	.60	1.62
B_1	12-18	Yellowish brown (10YR 5/6) light silty clay loam; moderate medium subangular blocky structure; firm.	.38	.11	2.28	.66	1.62
B_{2m}	18-36	Brown (10YR 5/3) mixed with light gray (10YR 7/2) silty clay loam; medium to coarse moderate subangular blocky; firm.	.44	.17	7.92	3.06	4.86
B_{3m}	36-46	Light yellowish brown (10YR 5/9) heavy silt loam mottled with light gray (10YR 7/2) weak; coarse blocky structure.	.42	.16	4.20	1.60	2.60
C_m	46-60	Brown (10YR 5/3) silt loam; mottled with light gray (10 YR 7/1); polygonal gray cracks; brittle.	.49	.16	6.86	2.24	4.62

Total inches available water in soil type: 16.76

Total inches available water in probable rooting depth: 9.54

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-6	1.25	26.7	21.5	15.3	13.0	9.7	7.2
A_2	6-12	1.30	28.1	22.6	16.8	15.1	10.9	8.1
B_1	12-18	1.36	27.8	22.5	17.1	15.4	10.8	8.1
B_{2m}	18-36	1.49	29.2	24.5	19.7	17.5	14.1	11.2
B_{3m}	36-46	1.33	31.6	27.4	20.8	17.7	15.0	12.0
C_m	46-60	1.59	30.8	25.7	18.8	17.0	12.9	10.1

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Robbs silt loam #335 Relief: Level - subnormal
Classification: Gray Brown Podzolic - Planosol Intergrade Drainage:
Area: Pope County, Ill.
Parent Material: Peorian Loess

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-6	Grayish brown (10YR 5/2) silt loam; friable; weak fine crumb structure.	0.38	0.10	2.28	0.60	1.68
A_2	6-18	Light yellowish brown (10 YR 6/5) with some light gray (10YR 7/2) in lower part; silt loam; medium to platy structure; black and manganese concretions.	.42	.16	5.04	1.92	3.12
B_2	18-30	Light yellowish brown (10 YR 6/4) mottled with light gray (10YR 7/2) and yellowish brown (10YR 5/8); silty clay loam with moderate medium to coarse subangular blocky structure; firm when moist; iron manganese concr.	.44	.16	5.28	1.92	3.36
B_3	30-36	Light silty clay loam with weak coarse blocky structures; iron manganese concretions.	.52	.17	3.12	1.02	2.10
C_1	36-60	Light yellowish brown (10YR 6/4) mottled with light brownish gray (10YR 6/2) and strong brown (7.5YR 5/8) silt loam; massive; Fragipan.	.43	.14	10.32	3.36	6.96
Total inches available water in soil type:							17.22
Total inches available water in probable rooting depth:							8.16

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-6	1.29	29.8	24.1	17.9	17.5	11.0	8.1
A_2	6-18	1.40	29.9	26.2	21.1	18.0	14.5	11.1
B_2	18-30	1.40	31.6	27.6	21.8	18.3	14.7	11.6
B_3	30-36	1.56	33.4	28.4	20.8	18.2	14.4	11.1
C_1	36-60	1.37	31.4	28.0	20.1	17.8	13.7	10.4

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: 160 silt loam
Classification: Gray brown Podzolic
Area: Pike County, Ill.
Parent Material: Peorian age loess

Relief: Rolling - normal
Drainage: Well

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-6	Dark grayish brown (10YR 3.5/2) friable silt loam; weak to moderately developed fine crumb structure.	0.28	0.09	1.68	0.54	1.14
A_2	6-12	Dark grayish brown (10YR 4/2) silt loam; moderately to strongly developed medium platy structure.	.35	.14	2.10	.84	1.26
B_1	12-18	Dark brown (7.5YR 4/4) silty clay loam; moderately developed fine subangular blocky structure.	.31	.14	1.86	.84	1.02
B_2	18-29	Dark brown (7.5YR 4/4) silty clay loam; moderately developed medium to coarse subangular blocky structure.	.37	.15	4.07	1.65	2.42
B_3	29-37	Dark brown (7.5YR 4/4) and (7.5YR 4/2) silt loam; weakly developed coarse subangular blocky structure.	.44	.16	3.52	1.28	2.24
C_1	37-60	Yellowish brown (10YR 5/4) silt loam; massive; coatings of dark reddish gray (5YR 4/2) present.	.44	.14	10.12	3.22	6.90

Total inches available water in soil type: 14.98

Total inches available water in probable rooting depth: 14.98

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-6	1.13	24.7	20.6	16.6	14.2	10.3	7.8
A_2	6-12	1.26	27.6	24.7	20.2	17.7	13.8	11.0
B_1	12-18	1.06	29.7	26.7	22.3	19.6	16.1	13.1
B_2	18-29	1.10	33.8	29.3	23.9	20.9	16.7	13.4
B_3	29-37	1.34	33.0	29.3	22.3	18.9	14.7	11.6
C_1	37-60	1.35	32.3	28.1	20.6	17.1	12.7	10.1

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Bluford silt loam — Relief: Undulating - subnormal
Classification: Gray brown Podzolic-Planosol Intergrade — Drainage: Imperfect
Area: Jefferson Co., Ill.
Parent Material: Peorian Loess over Illinoian Glacial Till

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-6	Dark yellowish brown (10 YR 3.5/4) silt loam; weak medium granular structure; friable.	0.31	0.09	1.86	0.54	1.32
A_2	6-18	Yellowish brown (10YR 5/3) common fine faint gray (10 YR 6/1) and yellowish brown (10YR 5/6) mottles; silt loam; vesicular; friable.	.51	.18	6.12	2.16	3.96
B_2	18-28	Brown (10YR 5/3) with common fine faint light brownish gray (10YR 6/2) and yellowish brown (10YR 5/6) mottles; silty clay loam; strong medium to coarse subangular blocky to angular blocky structure; very firm when moist.	.42	.20	4.20	2.00	2.20
C_1	28-42	Light brownish gray (10YR 6/2) with common fine distinct yellowish brown (10YR 5/8) and common fine faint light gray (10YR 7/1) mottles silt loam; friable; massive.	.50	.20	7.00	2.80	4.20
D	42-60	Light brownish gray (10YR 6/2) with many fine faint yellowish brown (10YR 5/8) mottles; silt loam; friable; structureless.	.56	.23	10.08	4.14	5.94
Total inches available water in soil type:							17.62
Total inches available water in probable rooting depth:							7.48

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-6	1.25	25.1	23.4	18.0	15.6	10.3	7.3
A_2	6-18	1.64	31.2	26.8	21.1	19.1	14.4	10.8
B_2	18-28	1.22	34.3	31.3	27.3	24.9	20.3	16.8
C_1	28-42	1.50	33.4	30.1	23.8	21.5	17.1	13.7
D	42-60	1.80	31.4	28.4	22.3	20.1	16.1	12.8

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Fayette silt loam
Classification: Gray brown Podzolic
Area: Henry County, Ill.
Parent Material: Loess (Peorian)

Relief: Undulating to rolling - normal
Drainage: Well

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-7	Dark grayish brown (10YR 3.5/2) silt loam; weak fine granular; very friable when moist.	0.31	0.08	2.17	0.56	1.61
A_2	7-13	Dark grayish brown (10YR 4/2) silt loam; weak fine subangular; friable when moist.	.41	.12	2.46	.72	1.74
B_1	13-17	Brown (10YR 4/3) light silty clay loam; moderate fine subangular blocky; firm when moist.	.35	.13	1.40	.52	.88
B_2	17-42	Brown (10YR 4/3) silty clay loam; strong medium subangular blocky; very firm when moist.	.43	.20	10.75	5.00	5.75
B_3	42-47	Brown (10YR 5/3) light silty clay loam; weak medium subangular; very firm when moist.	.49	.23	2.45	1.15	1.30
C_1	47-60	Pale brown (10YR 6/3) and yellowish brown (10YR 5/6) heavy silt loam; weak subangular blocky; friable when moist.	.46	.20	5.98	2.60	3.38

Total inches available water in soil type: 14.66

Total inches available water in probable rooting depth: 14.66

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-7	1.13	27.4	23.5	19.1	15.9	10.4	7.2
A_2	7-13	1.49	27.8	24.6	19.9	16.9	11.8	8.3
B_1	13-17	1.32	26.4	25.1	21.1	18.1	13.6	10.0
B_2	17-42	1.40	30.6	29.6	25.0	21.7	17.5	14.2
B_3	42-47	1.53	32.4	32.0	25.9	22.0	17.8	15.0
C_1	47-60	1.50	30.8	30.0	24.2	20.5	16.9	13.3

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Onarga fine sandy loam
Classification: Brunizem
Area: Mason County, Ill.
Parent Material: Water worked sands and loamy sands

Relief: Level - normal
Drainage: Moderately well

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p + A_1	0-18	Very dark brown (10YR 2/2) fine sandy loam; weakly developed fine granular structure; very friable when moist.	0.26	0.10	4.68	1.80	2.88
A_3 + B_1	18-25	Very dark grayish brown (10 YR 3/2) loam; moderately developed fine subangular blocky structure; friable when moist.	.25	.09	1.75	0.63	1.12
B_2	25-42	Dark yellowish brown (10YR 4/2-4/4) light sandy clay loam to sandy clay loam; moderately developed medium to coarse angular blocky to subangular blocky structure; firm when moist.	.25	.11	4.25	1.87	2.38
B_3	42-45	Dark yellowish brown (10YR 4.5/4) loam; weakly developed coarse subangular blocky structure; friable when moist.	.19	.09	.57	.27	.30
C_1	45-60	Yellowish brown (10YR 5/4-5/6) loamy sand to sandy loam; structureless; stratified layers of sandy loam and loamy sand; very friable.	.14	.07	2.10	1.05	1.05
Total inches available water in soil type:							8.78
Total inches available water in probable rooting depth:							8.78

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p + A_1	0-18	1.34	19.3	16.2	14.0	12.5	9.8	7.5
A_3 + B_1	18-25	1.20	21.1	17.2	14.1	12.4	9.6	7.8
B_2	25-42	1.26	19.5	16.4	14.1	12.5	10.0	8.7
B_3	42-45	1.39	14.0	11.5	10.0	8.9	7.5	6.3
C_1	45-60	1.28	10.7	9.5	8.3	7.7	6.5	5.5

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Sidell silt loam
Classification: Brunizem
Area: Champaign County, Ill.
Parent Material: Very shallow loess on leached Wisconsin aged till

Relief: Rolling - normal
Drainage: Well

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p + I	0-13	Very dark gray (10YR 3/4.5) silt loam moderately developed; medium crumb structure; friable.	0.31	0.11	4.03	1.43	2.60
B_1	13-17	Dark brown (10YR 4/3) light silty clay loam; moderately developed fine subangular blocky structure; slightly sticky.	.38	.17	1.52	.68	.84
B_2	17-28	Dark yellowish brown (10YR 4/4) silty clay loam; moderately developed medium subangular blocky structure; sticky.	.41	.17	4.51	1.87	2.64
B_3	28-42	Yellowish brown (10YR 5/6) gritty silty clay loam; moderately developed medium subangular blocky structure; slightly sticky.	.36	.15	5.04	2.10	2.94
C_1	42-60	Yellowish brown (10YR 5/6) heavy loam with common fine faint grayish brown (10YR 5/2) mottles; weakly developed coarse subangular blocky structure; slightly sticky.	.32	.13	5.76	2.34	3.42
Total inches available water in soil type:							12.44
Total inches available water in probable rooting depth:							12.44

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p + I	0-13	1.11	28.3	22.1	19.1	18.0	13.4	10.2
B_1	13-17	1.25	30.3	25.8	21.3	20.5	16.5	13.4
B_2	17-28	1.36	30.1	25.4	21.0	19.8	16.1	12.8
B_3	28-42	1.50	23.8	20.0	16.1	15.3	12.2	9.7
C_1	42-60	1.60	20.2	17.1	14.2	13.4	10.5	8.2

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Muscatine silt loam
Classification: Brunizem
Area: Tazewell County, Ill.
Parent Material: Peorian loess
Relief: Level to very gently rolling - subnormal
Drainage: Imperfect

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
$A_p - A_1$	0-14	Very dark brown (10YR 2/1.5) silt loam; weakly developed fine granular structure; friable when moist.	0.34	0.14	4.76	1.96	2.80
$A_3 - B_1$	14-21	Very dark brown (10YR 2.5/2) heavy silt loam; moderately developed fine angular blocky structure; friable when moist.	.35	.22	2.45	1.54	.90
B_2	21-36	Dark yellowish brown (10YR 5/4) with thin (10YR 4/2) clay coatings and many medium distinct grayish brown (10YR 5/5.2) mottles silty clay loam; moderately developed fine subangular blocky structure; firm when moist; with many medium dist. yellowish brown (10YR 5/6) mottles.	.32	.20	4.80	3.00	1.80
B_3	36-42	Grayish brown (2.5Y 5/2) with many medium prominent yellowish brown (10YR 5/8) mottles; light silty clay loam; weakly developed coarse subangular blocky structure; firm when moist.	.46	.30	2.76	1.80	.96
C_1	42-60	Brown (10YR 5/3) with many medium distinct yellowish brown (10YR 5/8) mottles; silt loam; massive; friable when moist.	.42	.12	7.56	2.16	5.40

Total inches available water in soil type: 11.86

Total inches available water in probable rooting depth: 11.86

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
$A_p - A_1$	0-14	1.01	33.9	28.5	24.0	21.0	16.7	13.5
$A_3 - B_1$	14-21	1.10	31.4	29.0	26.4	24.3	22.0	20.0
B_2	21-36	1.03	31.3	29.3	26.4	24.1	20.1	19.8
B_3	36-42	1.51	30.7	26.3	19.9	16.7	12.6	10.3
C_1	42-60	1.45	28.9	22.7	16.4	13.6	10.0	8.0

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Ringwood silt loam
Classification: Brunizem
Area: McHenry County, Ill.
Parent Material: Shallow loess on sandy loam drift

Relief: Slightly rolling - normal
Drainage: Well

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A	0-9	Very dark brown (10YR 2/2) silt loam; friable; moderate medium crumb structure.	0.27	0.12	2.43	1.08	1.35
B_1	9-16	Dark brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; slightly firm.	.28	.13	1.96	.91	1.05
IB_{21}	16-24	Dark yellowish brown (10YR 4/4) moderate medium subangular blocky structure; firm when moist.	.25	.13	2.00	1.04	.96
IIB_{22}	24-32	Yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; firm when moist.	.20	.12	1.60	.96	.64
IIB_3	32-36	Brown (7.5YR 4/4) light clay loam to loam; weak coarse subangular blocky structure; friable when moist.	.24	.09	.96	.60	.36
C	36-60	Brown (7.5YR 4/4) sandy loam structureless to very weak coarse subangular blocky; friable when moist.	.25	.08	6.00	1.92	4.08
Total inches available water in soil type:							8.44
Total inches available water in probable rooting depth:							4.36

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A	0-9	1.07	25.4	21.9	18.8	17.1	13.7	11.4
B_1	9-16	1.00	27.9	23.4	19.7	17.7	13.9	12.6
IB_{21}	16-24	1.08	23.0	20.4	17.5	16.0	13.5	11.7
IIB_{22}	24-32	1.02	19.9	17.6	15.4	14.0	11.8	11.3
IIB_3	32-36	1.68	14.4	12.3	10.2	9.2	6.9	5.2
C	36-60	1.76	14.1	12.0	10.2	9.2	6.9	4.3

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Sumner sandy loam
Classification: Brunizem
Area: Tazewell County, Ill.
Parent Material: Wind and water sorted sands

Relief: Rolling - normal
Drainage: Well

Horizon	Depth	Description	Inch Water/ Inch Soil 1/3 atm	Inch Water/ Inch Soil 15 atm	Total In. Water in Typical Horizon 1/3 atm	Total In. Water in Typical Horizon 15 atm	Inches Available Water in Typical Horizon
A_p	0-8	Very dark grayish brown (10YR 3/2) light sandy loam; very friable; weakly developed fine granular structure.	0.09	0.04	0.72	0.32	0.40
A_1 † A_3	8-18	Dark brown (10YR 3/2 to 3/4 sandy loam; very friable; weakly developed medium granular structure.	.14	.06	1.48	.60	.80
B_1 † B_2	18-24	Dark brown (7.5YR 3/4) clay loam; friable; weakly developed medium subangular blocky structure.	.14	.06	.84	.36	.48
B_3	24-37	Dark brown (7.5YR 3/4) light sandy loam; very friable; very weakly developed coarse subangular blocky structure.	.09	.05	1.17	.65	.52
C_1	37-60	Light yellowish brown (10YR 6/4) loamy fine sand to fine sand; single grain; loose.	.06	.03	1.38	.69	.69

Total inches available water in soil type: 2.89

Total inches available water in probable rooting depth: 2.89

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres 1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-8	1.39	6.6	6.2	5.0	4.3	3.5	2.7
A_1 † A_3	8-18	1.51	9.3	9.1	7.5	6.4	5.0	3.9
B_1 † B_2	18-24	1.57	8.8	8.5	7.1	6.3	5.1	4.0
B_3	24-37	1.50	6.3	6.0	5.4	4.7	3.9	3.2
C_1	37-60	1.72	3.3	3.1	2.8	2.5	2.3	1.8

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Swygert silt loam
Classification: Brunizem
Area: Livingston County, Ill.
Parent Material: Very shallow loess on Wis. age silty clay glacial drift

Relief: Rolling - normal
Drainage: Imperfect

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-6	Very dark brown (10YR 2.5/1) heavy silt loam; moderately developed fine crumb structure; firm when moist.	0.30	0.15	1.80	0.90	0.90
B_1	6-11	Dark grayish brown (10YR 4/2) silty clay loam; with common medium distinct yellowish brown (10YR 5/6) mottles; moderately developed fine subangular blocky structure; firm.	.32	.19	1.60	.95	.65
B_2	11-25	Dark grayish brown (2.5Y 4/2) silty clay with common medium distinct yellowish brown (10YR 5/4-5/8) mottles; moderately developed medium subangular blocky to blocky structure; very firm.	.34	.20	4.76	2.80	1.96
C	25-60	Dark grayish brown (2.5Y 4/2) silty clay with common medium faint gray (2.5Y 5/1) and yellowish brown (10YR 5/6) mottles; massive; very firm.	.48	.31	16.80	10.8	6.00

Total inches available water in soil type: 9.51

Total inches available water in probable rooting depth: 3.51

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-6	1.15	26.2	25.5	23.2	19.6	16.0	13.4
B_1	6-11	1.22	26.7	25.9	23.9	22.8	17.9	15.6
B_2	11-25	1.48	23.0	22.4	20.8	19.0	14.8	13.6
C	25-60	1.86	26.0	24.7	24.1	21.8	18.9	16.6

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Elliott silt loam
Classification: Brunizem
Area: Will County, Ill.
Parent Material: Shallow Peorian Loess on Silty Clay Loam Wis. Aged Till

Relief: Gently rolling - subnormal
Drainage: Imperfect

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-9	Black to very dark gray (10YR 2.5/1); silt loam; medium crumb structure.	0.27	0.11	2.43	0.99	1.44
A_3	9-17	Very dark gray (10YR 3/1); silt loam; medium granular structure.	.31	.16	2.48	1.28	1.20
B_1	17-24	Dark brown to very dark gray (10YR 4/3 to 3/1) silty clay loam; strong fine subangular blocky structure.	.47	.24	3.29	1.68	1.61
B_2	24-34	Dark brown (10YR 4/3) with common medium distinct yellowish brown (10YR 5/6) mottles silty clay loam; strong fine subangular blocky to angular blocky structure; very firm when moist.	.50	.26	5.00	2.60	2.40
C_1	34-60	Yellowish brown (10YR 5/3 to 5/6) with common distinct medium dark grayish brown (2.5YR 5/2 to 4/2) mottles; silty clay loam; strong medium angular blocky structure.	.48	.26	12.48	6.76	5.72

Total inches available water in soil type: 12.37

Total inches available water in probable rooting depth: 6.65

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-9	0.87	31.2	28.1	24.0	21.8	16.6	13.1
A_3	9-17	1.11	28.1	26.5	24.3	22.6	18.1	14.4
B_1	17-24	1.48	31.6	28.6	25.8	24.0	19.5	16.3
B_2	24-34	1.62	30.8	27.5	24.2	22.6	18.7	15.9
C_1	34-60	1.79	26.9	23.6	23.5	22.0	19.4	14.6

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Tama silt loam
Classification: Brunizem
Area: Peoria County, Ill.
Parent Material: Peorian Loess

Relief: Rolling - normal
Drainage: Well

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-7	Very dark brown (10YR 2/2) heavy silt loam; moderately developed medium crumb structure; friable.	0.30	0.13	2.10	0.91	1.19
B_2	7-19	Dark yellowish brown (10YR 4/4) silty clay loam; moderately developed fine to medium subangular blocky structure; very firm when moist.	.31	.14	3.72	1.68	2.04
B_3	19-31	Dark yellowish brown (10YR 4/4) with few fine faint brown (10YR 5/3) mottles; light silty clay loam; moderate medium subangular blocky structure; very firm when moist.	.35	.14	4.20	1.68	2.52
C_1	31-38	Dark yellowish brown (10YR 4/4) with few fine faint light brownish gray (10YR 6/2) mottles; heavy silt loam; weakly developed coarse subangular blocky structure; friable when moist.	.41	.14	2.87	.98	1.89
C_2	38-60	Dark yellowish brown (10YR 4/4) with common fine faint light brownish gray (10YR 6/2) & yellowish brown (10 YR 5/6) mottles; silt loam; massive; friable when moist.	.41	.13	9.02	2.86	6.16

Total inches available water in soil type: 13.80

Total inches available water in probable rooting depth: 13.80

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-7	1.18	25.1	22.8	19.3	17.5	13.0	10.8
B_2	7-19	1.02	30.1	27.5	23.7	21.1	16.8	13.7
B_3	19-31	1.19	29.0	25.9	21.7	18.8	14.2	11.9
C_1	31-38	1.44	28.4	24.9	19.4	16.9	11.6	9.6
C_2	38-60	1.55	26.3	22.7	17.7	14.7	10.0	8.1

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Watseka loamy fine sand
Classification: Brunizem
Area: Kankakee County, Ill.
Parent Material: Water worked sands

Relief: Flat
Drainage: Imperfect

Horizon	Depth	Description	Inch Water/ Inch Soil 1/3 atm	Inch Water/ Inch Soil 15 atm	Total In. Water in Typical Horizon 1/3 atm	Total In. Water in Typical Horizon 15 atm	Inches Available Water in Typical Horizon
A_1 † A_3	0-15	Very dark brown (10YR 2/ 1.5) loamy fine sand; structureless to granular; very friable when moist.	0.14	0.07	2.10	1.05	1.05
B_1	15-24	Yellowish brown (10YR 5/7) loamy fine sand; single grain.	.06	.03	.54	.27	.27
B_2	24-29	Yellowish brown (10YR 5/6) with common fine distinct brown (7.5YR 5/4) and common fine faint light yellowish brown (10YR 6/4) mottles; loamy fine sand; single grain.	.07	.03	.21	.15	.06
C_1	29-60	Pale brown (10YR 6/3) fine sand with common coarse faint yellowish brown (10YR 5/4) mottles; single grain.	.05	.02	1.55	.62	.93

Total inches available water in soil type: 2.31

Total inches available water in probable rooting depth: 2.31

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres 1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_1 † A_3	0-15	1.35	10.2	9.1	7.8	7.2	5.6	4.8
B_1	15-24	1.70	3.5	2.9	2.6	2.4	2.0	1.8
B_2	24-29	2.25	3.0	2.6	2.0	1.8	1.5	1.4
C_1	29-60	2.37	1.9	1.7	1.4	1.2	1.0	0.9

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Hoopeston sandy loam
Classification: Brunizem
Area: Kankakee County, Ill.
Parent Material: Water deposited sands

Relief: Flat
Drainage: Imperfect

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_1	0-12	Black (10YR 2/1) sandy loam; single grain; very friable.	0.15	0.06	1.80	0.72	1.08
B_1	12-21	Dark yellowish brown (10 YR 4/4-4/6) sandy loam; single grain; very friable.	.13	.07	1.17	.63	0.54
B_2	21-24	Yellowish brown (10YR 5/6) with common coarse distinct gray (2.5Y 5/1) clay loam; weakly developed medium to coarse subangular blocky structure; slightly firm when moist.	.13	.07	0.39	0.21	0.18
C_1	24-60	Light brownish gray (2.5Y 6/2) with common medium prominent dark gray (10YR 4/1) mottles; fine sand; single grain; loose when moist. Yellowish red (5YR 4/6) sandy loam to sandy clay loam lenses and balls scattered throughout.	.06	.03	2.16	1.08	1.08

Total inches available water in soil type: 2.88

Total inches available water in probable rooting depth: 2.88

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_1	0-12	1.37	10.6	10.0	8.3	8.0	7.5	4.4
B_1	12-21	1.70	7.7	7.6	6.6	6.2	4.8	4.2
B_2	21-24	1.56	9.4	9.1	8.2	7.9	6.3	5.2
C_1	24-60	2.37	2.5	1.4	1.5	1.4	1.3	1.2

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Saybrook silt loam
Classification: Brunizem
Area: De Kalb County, Ill.
Parent Material: Shallow Peorian Loess on Wis. aged loam till

Relief: Slightly rolling - normal
Drainage: Well

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p † A_3	0-14	Very dark brown (10YR 2/2) silt loam; very friable; moderately developed fine granular structure.	0.30	0.10	4.20	1.40	2.80
B_1 † B_2	14-29	Brown (10YR 4/3) to yellowish brown (10YR 4.5/4) silty clay loam; firm; moderately developed medium subangular to angular blocky structure.	.30	.15	4.50	2.25	2.25
B_3 † C_1	29-40	Dark yellowish brown (10YR 4/4) to brown (7.5YR 5/4) heavy loam; friable; weakly developed medium subangular blocky structure.	.28	.14	3.08	1.54	1.54
C_2	40-60	Brown (7.5YR 5/4) with weak brown (7.5YR 5/6) mottles; loam; friable; massive.	.31	.11	6.20	2.20	4.00
Total inches available water in soil type:							10.59
Total inches available water in probable rooting depth:							6.59

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p † A_3	0-14	1.01	30.1	18.5	16.2	14.6	11.5	9.8
B_1 † B_2	14-29	1.28	23.3	21.2	18.2	17.0	13.8	11.5
B_3 † C_1	29-40	1.32	21.2	19.8	16.9	15.2	12.5	10.6
C_2	40-60	1.89	16.4	15.4	13.1	11.7	8.3	6.0

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Cowden silt loam
Classification: Planosol
Area: Montgomery County, Ill.
Parent Material: Peorian Loess
Relief: Level - flat
Drainage: Poor

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-8	Very dark grayish brown (10YR 2.5/2) silt loam; moderately developed medium crumb structure.	0.33	0.07	2.64	0.56	2.08
A_{21}	8-13	Very dark gray (10YR 2/1) to dark gray (10YR 4/1) silt loam; weakly developed medium plate: friable.	.29	.08	1.45	.40	1.05
A_{22}	13-20	Very dark gray (10YR 2.5 /1) silt loam; weakly developed medium subangular blocky structure; friable.	.39	.13	4.29	1.43	2.86
B_2	20-36	Very dark grayish brown (2.5Y 3/2) and dark gray (10YR 4/1) mottled with dark yellowish brown (10 YR 4/4); heavy silty clay loam; moderately dev. subangular blocky to blocky structure; extremely firm when moist.	.47	.26	5.64	3.12	2.52
B_3	36-44	Dark grayish brown (2.5Y 4/2) mottled with dark yellowish brown (10YR 4/4) light silty clay loam; weakly developed coarse subangular blocky to blocky structure; slightly firm when moist.	.51	.30	4.08	2.40	1.68
C_1	44-60	Olive gray (5Y 5/2) firm fine silt loam with many coarse prominent strong brown (7.5 YR 5/8) mottled iron streaks present; weak coarse blocky to structureless.	.44	.19	7.04	3.04	4.00

Total inches available water in soil type: 14.19
Total inches available water in probable rooting depth: 5.99

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-8	1.24	26.4	22.8	16.4	13.1	8.3	6.0
A_{21}	8-13	1.13	26.0	23.5	18.0	14.7	9.6	6.8
A_{22}	13-20	1.45	27.1	24.8	19.2	16.5	11.9	9.2
B_2	20-36	1.26	37.6	34.4	30.6	27.1	22.9	21.0
B_3	36-44	1.39	36.7	35.0	29.4	25.8	21.7	21.4
C_1	44-60	1.35	32.9	29.4	23.9	20.1	16.2	14.2

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Cisne silt loam
Classification: Planosol
Area: Marion County, Ill.
Parent Material: Peorian loess on Illinoian Till

Relief: Level - subnormal
Drainage: Poor

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-8	Very dark gray to dark gray brown (10YR 3.5/2) friable silt loam; weak fine crumb structure.	0.30	0.08	2.40	0.64	1.76
A_2	8-21	Light brownish gray (10YR 6/2) with few fine prominent mottles of yellowish red (5YR 5/8); friable silt loam; weak medium platy structure.	.36	.10	4.68	1.30	3.38
B_2	21-34	Grayish brown (10YR 5/2) with many medium prominent strong brown (7.5YR 5/6) mottles; silty clay; strong medium prismatic & strong coarse blocky structure; extremely firm when moist.	.43	.24	5.59	3.12	2.47
D	34-60	Gray (10YR 6/1) & yellowish red (5YR 4/8) silty clay loam; massive structure; Illinoian Till.	.48	.22	12.48	5.72	6.76

Total inches available water in soil type: 14.37

Total inches available water in probable rooting depth: 5.14

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-8	1.21	25.0	21.8	17.6	15.1	9.1	6.9
A_2	8-21	1.44	24.9	21.5	17.1	14.9	9.7	7.2
B_2	21-34	1.30	33.1	30.9	27.5	24.6	20.7	18.6
D	34-60	1.48	32.7	29.5	25.5	23.0	17.6	14.9

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Ginat silt loam — Relief: Level - subnormal
Classification: Planosol Low Humic Gley Intergrade — Drainage: Poor
Area: Massac County, Ill.
Parent Material: Non-calcareous waterlaid silt and clays

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-8	Dark grayish brown (10YR 4/2) silt loam; weak medium to fine granular structure; iron concretions present.	0.33	0.10	2.64	0.80	1.84
A_2	8-22	Light brownish gray (10YR 6/2) with prominent yellowish red (5YR 5/8) mottles heavy silt loam; vesicular in appearance; very weak platy to massive structure; numerous iron concretions & mica slates.	.37	.12	5.18	1.68	3.50
B_{21}	22-30	Light brownish gray (10YR 6/2) with common distinct reddish yellow (7.5YR 6/6) mottles; silty clay loam; weak medium subangular blocky to coarse blocky structure; iron concretions & mica slates present.	.42	.16	3.36	1.28	2.08
B_{22}	30-36	Light brownish gray (10YR 6/2) with medium brown (10 YR 5/3) & distinct reddish brown (5YR 4/4) mottles; silty clay loam texture; weak coarse blocky structure; iron concretions & mica slates present.	.39	.16	2.34	.96	1.38
C_1	36-60	Grayish brown (10YR 5/2) with many coarse prominent yellowish red (5YR 4/6) mottles; silty clay loam; massive structure; numerous iron concretions and mica slates present.	.40	.19	9.60	4.56	5.04

Total inches available water in soil type: 13.84
Total inches available water in probable rooting depth: 5.34

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-8	1.32	24.8	21.7	18.7	16.4	11.2	7.9
A_2	8-22	1.38	27.0	23.3	19.8	17.4	12.0	8.6
B_{21}	22-30	1.45	28.8	26.2	22.6	20.8	14.7	11.4
B_{22}	30-36	1.34	28.9	26.5	23.8	21.1	14.9	11.6
C_1	36-60	1.29	31.0	28.8	26.1	23.7	18.0	15.0

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Herrick silt loam
Classification: Brunizem-Planosol Intergrade
Area: Pike County, Ill.
Parent Material: Peorian Loess

Relief: Level - subnormal
Drainage: Imperfect

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-9	Very dark gray to black (10YR 2.5/1) friable silt loam; moderately developed fine crumb structure.	0.30	0.08	2.70	0.72	1.98
A_2	9-15	Gray to dark gray (10 YR 4.5/1) silt loam with a strongly developed medium fine crumb structure.	.30	.11	1.80	.66	1.14
B_1	15-33	Dark gray (10YR 4/1) silty clay loam; mottled with gray-brown; (10YR 5/2) & light brown-gray (10YR /2) & yellowish-brown(10 YR 5/6); strongly developed medium to coarse subangular blocky structure.	.37	.09	6.66	1.62	5.04
B_2	33-41	Dark gray (10 YR 4/1) silty clay loam; mottled with yellowish brown(10YR 5/8) gray-brown (10YR 5/2) & light brown gray (10YR 6/2); moderately developed coarse blocky structure.	.51	.22	4.08	1.76	2.32
$B_3 + C_1$	41-60	Yellowish brown (10YR 5/8) mottled with light brown-gray (10YR 6/2) & dark gray (10YR 5/1) & gray-brown (10 YR 5/2) heavy silt loam; massive.	.54	.24	10.26	4.56	5.70

Total inches available water in soil type: 16.18
Total inches available water in probable rooting depth: 10.48

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-9	1.16	25.6	20.4	15.8	13.3	8.9	6.9
A_2	9-15	1.10	27.4	21.3	17.4	15.5	12.7	10.0
B_1	15-33	1.20	31.2	25.7	19.2	17.4	15.2	7.4
B_2	33-41	1.34	37.7	30.3	26.7	24.2	19.8	16.4
$B_3 + C_1$	41-60	1.55	34.6	29.8	26.3	23.9	19.0	15.7

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Tice silty clay loam
Classification: Alluvial
Area: Union County, Ill.
Parent Material: Water deposited silts and clays

Relief: Level
Drainage: Imperfect

Horizon	Depth	Description	Inch Water/ Inch Soil 1/3 atm	Inch Water/ Inch Soil 15 atm	Total In. Water in Typical Horizon 1/3 atm	Total In. Water in Typical Horizon 15 atm	Inches Available Water in Typical Horizon
A_p	0-9	Very dark grayish brown (10YR 3/2-4/1) silty clay loam; moderately developed fine granular structure; friable.	0.36	0.21	3.24	1.89	1.35
#1	9-27	Very dark grayish brown (10 YR 3/2) silty clay loam with common fine faint strong brown (7.5 YR 5/6) and few fine distinct black (10YR 2/1) mottles; weakly developed medium subangular blocky structure; firm.	.51	.25	9.18	4.50	4.68
#2	27-60	Brown (7.5YR 5/2) to gray (7.5YR 5/0) silty clay loam; with common medium distinct yellowish red (5YR 4/6) and faint brown (7.5YR 5/6) mottles; weakly developed coarse granular to massive; firm. Texture becomes coarser with depth, approaching a loam at 60 inches.	.55	.31	18.15	10.23	7.92

Total inches available water in soil type: 13.95

Total inches available water in probable rooting depth: 13.95

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres 1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-9	0.96	38.0	35.1	31.4	28.6	23.3	22.2
#1	9-27	1.42	35.9	31.7	27.5	25.0	20.3	17.7
#2	27-60	1.34	40.8	37.4	34.2	31.2	26.1	22.9

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Bonnie silt loam
Classification: Alluvial
Area: Wayne County, Ill.
Parent Material: Waterlaid silt

Relief: Level
Drainage: Poor

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-9	Dark brown (10YR 3.5/4) silt loam with weak fine to medium platy structure; friable; structureless.	0.39	0.12	3.51	1.08	2.43
#1	9-15	Gray (10YR 6/1) with common fine faint grayish brown (10YR 5/2) mottles; friable silt loam; numerous iron concretions; structureless.	.44	.13	2.64	.78	1.86
#2	15-33	Gray (10YR 6/1) with common fine faint brownish yellow (10YR 6/6) and white (10YR 8/1) mottles; friable silt loam; numerous iron concretions.	.48	.14	8.64	2.52	6.12
#3	33-60	Gray (10YR 6/1) with many fine faint yellowish brown (10YR 5/6) and common fine faint white (10YR 8/1) mottles; friable silt loam; structureless; numerous iron concretions.	.48	.20	12.96	5.40	7.56

Total inches available water in soil type: 17.97

Total inches available water in probable rooting depth: 10.41

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-9	1.31	29.8	28.2	22.8	20.4	13.6	9.0
#1	9-15	1.41	31.6	29.5	23.6	20.8	13.6	9.2
#2	15-33	1.55	30.8	28.9	23.6	20.3	13.4	9.1
#3	33-60	1.55	30.9	29.9	26.8	23.8	17.4	12.7

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Sawmill silty clay loam — Relief: Level
Classification: Alluvial - Humic Gley Intergrade — Drainage: Poor
Area: Whiteside Co., Ill.
Parent Material: Waterworked silts and clays

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-8	Black (10YR 2.5/1) silty clay loam; moderate medium subangular blocky structure; firm when moist.	0.29	0.19	2.32	1.52	0.80
A_1	8-21	Black (10YR 2/1) silty clay loam; weak fine to medium subangular blocky structure; very firm when moist.	.41	.22	5.33	2.86	2.47
B_{1g}	21-28	Very dark gray (10YR 3/1) with common fine distinct dark brown (7.5YR 4/4) mottles; heavy silty clay loam; moderate medium subangular blocky structure; firm when moist.	.38	.19	2.66	1.33	1.33
B_{2g}	28-34	Dark gray (10YR 4/1) with many distinct medium dark brown (7.5YR 4/4) mottles; silty clay loam; weak medium to coarse prismatic structure; firm when moist.	.37	.20	2.22	1.20	1.02
C_{1g}	34-50	Dark gray (10YR 4.5/1) with few fine faint dark brown (7.5YR) mottles; light silty clay loam; massive structure; very sticky when wet.	.29	.15	4.64	2.40	2.24
C_{2g}	50-60	Dark gray (10YR 4.5/1) with many medium prominent dark reddish brown (5YR 3/4) mottles; light silty clay loam; structureless.	.38	.17	3.80	1.70	2.10

Total inches available water in soil type: 9.96
Total inches available water in probable rooting depth: 9.96

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-8	0.81	35.9	33.0	29.9	28.2	24.2	23.0
A_1	8-21	1.18	34.5	31.8	28.2	26.3	22.3	19.1
B_{1g}	21-28	1.14	33.1	29.5	25.9	23.5	19.1	17.0
B_{2g}	28-34	1.18	31.3	27.6	24.7	22.7	18.7	16.6
C_{1g}	34-50	1.18	24.7	22.5	19.8	16.9	14.2	12.9
C_{2g}	50-60	1.23	31.2	27.4	23.4	20.4	16.0	13.7

NOTE: Colors given for moist soil.

SOIL MOISTURE CHARACTERISTICS

Soil Type: Huntsville silt loam - 77
Classification: Alluvial - Regosol Intergrade
Area: Henderson County, Ill.
Parent Material: Water deposited silts and fine sands

Relief: Level
Drainage: Well

Horizon	Depth	Description	Inch Water/ Inch Soil		Total In. Water in Typical Horizon		Inches Available Water in Typical Horizon
			1/3 atm	15 atm	1/3 atm	15 atm	
A_p	0-9	Very dark brown to black (10YR 2/1.5) silt loam; weak fine crumb structure; friable.	0.33	0.13	2.97	1.17	1.80
A_1	9-15	Black (10YR 2/1) silt loam; weak fine crumb structure; friable.	.35	.16	2.10	.96	1.14
#1	15-27	Very dark gray to black (10 YR 2.5/1) silt loam; weak medium subangular blocky breaking to weak fine to medium crumb; friable.	.35	.13	4.20	1.56	2.64
#2	27-32	Very dark gray to black (10 YR 3.5/1) silt loam; moderate fine to medium subangular blocky; slightly firm.	.39	.15	1.95	.75	1.20
#3	32-60	Very dark grayish brown (10 YR 3/2) silt loam; structureless; friable.	.34	.11	9.52	3.08	6.44
Total inches available water in soil-type:							13.22
Total inches available water in probable rooting depth:							13.22

Soil Moisture Desorption Data

Horizon	Depth Typical Soil	Bulk Density (gm/cc)	Percent Water at Respective Tensions in Atmospheres					
			1/3 atm	1/2 atm	1 atm	1.75 atm	5 atm	15 atm
A_p	0-9	1.17	28.3	23.6	19.2	17.1	13.3	11.3
A_1	9-15	1.25	28.2	24.9	20.2	17.9	13.9	13.0
#1	15-27	1.18	29.9	24.5	19.3	17.0	13.0	11.3
#2	27-32	1.41	28.0	23.5	18.7	16.5	12.5	10.5
#3	32-60	1.43	24.0	19.3	15.0	12.8	9.7	7.8

NOTE: Colors given for moist soil.